

**CLAIMS**

1. Method for providing a polymeric implant object with a crystalline calcium phosphate (CaP) coating, said method comprising the step of irradiating a polymeric  
5 substrate having deposited thereon an amorphous CaP coating with laser light of  $<200$  nm and  $10-1000 \text{ mJ/cm}^2$ .
2. Method according to claim 1 in which the irradiating with laser light  $<200$  nm and  $10-1000 \text{ mJ/cm}^2$  is carried out during deposition of a CaP coating onto a polymeric  
10 substrate.
3. Method according to claims 1 or 2 in which the polymeric substrate comprises at least one selected from the group consisting of polyethylene (PE), poly(ethyleneterephthalate) (PET), polytetrafluoroethylene (PFTE), polystyrene (PS),  
15 poly-L-lactic acid (PLLA), polydimethylsiloxane (PDMS), polyimide (PI), polyglycolic acid (PGA), polypropylene fumarate (PPF) and polybutylterephthalate (PBT).
4. Method according to any of the preceding claims in which the CaP coating is deposited using any method suitable for depositing a CaP coating, said deposited CaP  
20 coating being amorphous.
5. Method according to claim 4 in which the method suitable for depositing a CaP coating is selected from plasma spraying, biomimetic deposition, laser deposition, ion  
25 beam deposition and RF magnetron sputter deposition or combinations thereof, preferably RF magnetron sputter deposition.
6. Method according to any of the preceding claims in which the laser light is from a laser selected from the group consisting of  $\text{F}_2$  and ArF.
- 30 7. Method according to any of the preceding claims in which the laser light has an energy of  $10-500 \text{ mJ/cm}^2$ .

8. Method according to any of the preceding claims in which the position of the laser relative to the object to be irradiated is controlled thereby creating a pattern of crystallisation on the irradiated object.
- 5 9. Polymeric implant object obtainable by the method according to any of the preceding claims.
- 10 10. Polymeric implant object according to claim 9, said object comprising a polymeric substrate having a crystalline CaP coating, said crystalline CaP coating having a thickness of at least 10 nm, but less than 1000 nm.
11. Polymeric implant object according to claims 9 or 10, said implant being a fracture fixation plate, fixation screw, medullary nail, acetabular cup, guided tissue regeneration membrane.
- 15 12. Polymeric implant object according to claims 9 or 10, said implant being of flexible polymeric material.